FY08-LXII (62)-159

"Demonstration of Coal Combustion Products for Green Roadbuilding in Medora, North Dakota"

Submitted by: EERC
Principal Investigator: Debra Pflughoeft-Hassett

PARTICIPANTS

Sponsor	Cost Share
Great River Energy	$25,000
Medora Foundation	$100,000
EERC-DOE JSRP	$127,725
NDIC	$125,000
Total Cost	$377,725

Project Schedule – 17 months
Contract Signed – 2/15/08
Start Date – 2/1/08
Completion Date – 6/30/09

Project Deliverables
Status Reports:
4/30/08(✓); 7/31/08( );
10/31/08( );
Draft Final Report: 1/31/09( );
Final Report: 3/31/09( )

OBJECTIVE / STATEMENT OF WORK:

Demonstrate environmentally sustainable (green) roadbuilding using multiple coal combustion product (CCP) utilization applications and, in the process, educate North Dakota industry, state agencies, and the public about environmentally sustainable construction. This project will apply technologies in a single site to demonstrate that a North Dakota product, CCPs, can be effective in constructing durable roads that meet North Dakota transportation needs and meet environmentally sustainable or green roadbuilding objectives: 1) watershed-driven storm water management, 2) reuse and recycling of materials, and 3) conservation and protection of ecosystems.

STATUS

January 1 – March 31, 2008. The project manager communicated with TRMF on the project site to determine specific needs. The original site, parking and driveway areas at the Rough Rider Hotel, presented opportunities to use high-volume fly ash concrete pavement, pervious concrete for storm water control, and fly ash-stabilized soil. It was also proposed that bottom ash could be used for additional storm water runoff control. The parking and driveway areas were to be constructed following the construction of an addition to the hotel. It was determined that the construction schedule for the hotel had been delayed because of funding issues. The hotel construction delay would result in a delay to the parking and driveway construction that would not be consistent with the project scheduled end date of March 31, 2009. TRMF and EERC representatives evaluated an alternate site for demonstration activities. The alternate site is at the Medora Musical venue located less than 1 mile from the hotel site. The construction at the Musical site is scheduled for completion in May 2008. The Musical site required pavement for driveway, parking, and pedestrian areas and provided a high-visibility location for the demonstration activities. It was determined that two types of high-volume fly ash concrete (50% and 70% fly ash) could be placed in 4-inch and 6-inch pavement sections to demonstrate their performance for different use conditions. The Musical site

also exhibited swelling clay soil under the existing surface, which had resulted in the failure of the existing asphalt concrete pavement, providing an opportunity to demonstrate the use of fly ash in soil stabilization. However, because of construction activities already scheduled to replace a portion of the clay with granular material, it was decided that the fly ash soil stabilization demonstration would have to be performed elsewhere, either in adjacent parking and driveway areas at the Musical site or at the original hotel site. A soil sample was collected at the Musical site. Plans for placement of the high-volume fly ash concrete were discussed. Plans for the next quarter include communications with the site contractors and representatives of the North Dakota Department of Transportation and North Dakota Department of Health, concrete placement, and site visits as needed based on the construction schedule.